Erie Canal (Enlarged), Oothout Culvert (#11) and Waste Weir
Village of Maplewood
Colonie
Albany County
New York

HAER No. NY-152

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD
MID-ATLANTIC REGION NATIONAL PARK SERVICE
DEPARTMENT OF THE INTERIOR
PHILADELPHIA, PENNSYLVANIA 19106

HISTORIC AMERICAN ENGINEERING RECORD

Erie Canal (enlarged), Oothout Culvert and Waste Weir

HAER No. NY-152

Location:	South of Lock #4 near the village of Maplewood Colonie, Albany County, New York
Date of Construction:	circa 1838
Engineer:	Holmes Hutchinson
Present Use:	Proposal to construct a highway in the area of the unused canal ditch
Significance:	This portion of the Erie Canal, just south of Lock #4 in Maplewood, contains Oothout Culvert (#11), a waste weir and stone walling along the banks of the now unused canal ditch. This section of the canal was constructed as part of a plan to enlarge the Erie Canal, proposed in the early 1830s. As an alternative to widening the original canal built in 1925, four and one-third miles of new excavation was undertaken to relocate the canal path, resulting in the portion near Maplewood. Known as the "first enlargement" and completed between 1836 and 1842, the changes were in direct response to the increased traffic demands experienced in the heyday of canals. The empty canal ditch and stone-constructed weir and culvert serve as a visual reminder of the important role the canal played in the area's economic and social development during the first half of the nineteenth century.
Project Information:	Following proposals and alternatives for the location of Alternate Route 7, an expressway funded by the Federal Highway Administration, mitigative documentation of the historic resources in the path of the roadway was required.
Prepared by:	Ellen F. Higgins, Division of Historical and Anthropological Services, State Education Department, New York State Museum for the New York Department of Transportation, Federal Highway Administration, Region One, Leo W. O'Brien Federal Building, Ninth Floor, Albany, New York 12207

Erie Canal - General History

The Erie Canal, which connected Lake Erie to the Hudson River, was the culmination of many years of efforts to improve trade and travel routes between the eastern states and the interior sections of the United States, especially the Great Lakes region. New York State, whose Hudson River has a tidal navigation of 150 miles, presented a favorable location for such a transportation system.

The Indians were the first to recognize the importance of New York's natural waterways for commerce. They established trade routes between the east and the midwest by transporting goods in canoes on lakes and streams and carrying the goods and canoes overland between these navigable waters. The Europeans were quick to utilize the Indian trails and portage routes in order to gain access to the interior of this new land and expand their trade. Albany was located near two major Indian routes. One, which started at Schenectady and had three portages, headed west along the Mohawk River, Wood Creek, and Oneida Lake and then up the Oswego River to Lake Ontario. The other route, with one carrying place, went by way of Albany up the Hudson River and Lake Champlain to Montreal and then down the St. Lawrence River to Lake Ontario.

After 1650, the American colonies began a period of substantial growth. When hostilities between France and England began, the English settlers preferred to use the route along the Mohawk River to avoid the French-controlled areas to the north. This route, via Schenectady, remained the principal transportation route for 150 years until the Erie Canal was built. During the hostilities of the French and Indian War, and later during the Revolutionary War, the colonists began to realize the need to improve this route. With independence, the new Americans turned their energies inward to the growth of their young nation and, at first, had little time to devote to developing better transportation routes. However, the citizens of New York began to look at ways to increase commerce and promote the settlement of western areas of the State. Private companies were the first to try to improve the natural waterways by removing obstructions to streams and rivers, straightening the courses of the streams, and building canals or locks around the sections that were not navigable. The Western Inland Lock Navigation Company, incorporated in 1791, was one of the private companies which attempted to improve navigation along the Mohawk River route. The endeavors of the private companies failed quickly; they were forced to abandon their projects or to borrow heavily from the State.

In the early nineteenth century, a few farsighted individuals began to talk of "tapping Lake Erie and leading its waters across country to the Hudson River." Most people scoffed at the notion of a canal 350 miles long, saying it was not feasible and calling it "madness."

By the beginning of the second decade of the 1800s, the idea of a canal had become a public issue. The Legislature authorized surveys and explorations of a route between Lake Erie and the Hudson River. These studies were interrupted by the War of 1812 which reinforced the need felt during earlier wares for a rapid and inexpensive way to move people and supplies in wartime as well as in peacetime. A period of active canal policy began after the war and, in 1816, a law was passed which appointed five commissioners to provide "communication, by means of canals and locks, between the navigable waters of Hudson's River and Lake Erie...." With the passage of this act, preparations for building the original Erie Canal were underway. The area from Lake Erie to the Hudson River was divided into three sections:

1. The Western Section - from Lake Erie to the Seneca River.

2. The Middle Section - from the Seneca River to Rome.

3. The Eastern Section - from Rome to the Hudson River.

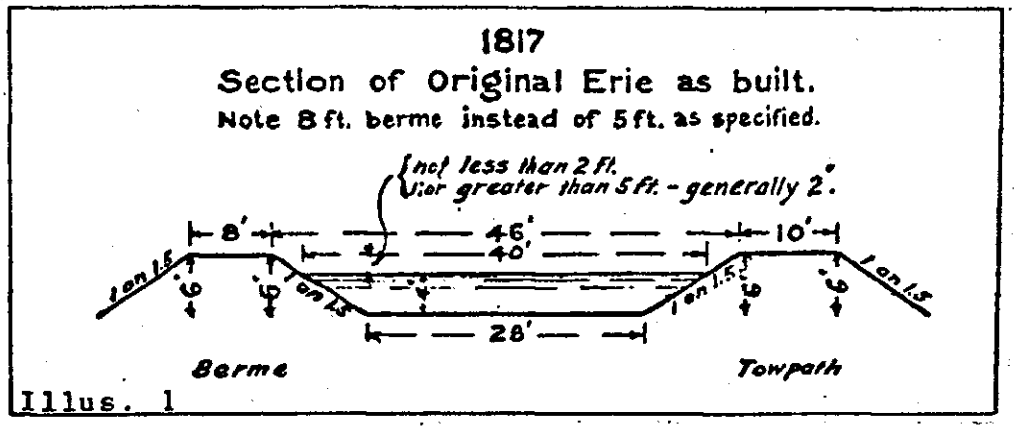
The area first authorized for construction was from the Mohawk River to the Seneca River, and the first ground broken for the canal was at Rome, New York, on July 1, 1817. Work on the canal progress quickly, considering the limited and crude methods of excavation. By 1820, the Middle Section from Utica to the Seneca River was completed; the Western Section was partially done; and work on the Eastern Section had started.

As soon as parts of the canal were constructed and could hold water, boats began using them. The portion from Schenectady to Little Falls was finished in 1822, opening 120 miles of canal for use. With the completion of the Eastern Section on October 1923, enough of the canal had been built to allow navigation from the Hudson River at Albany to the Genesee River at Rochester.

In the fall of 1825, the original Erie Canal was completed. To celebrate its official opening on October 26, 1825, a fleet of boats travelled the entire length of the canal from Lake Erie to Albany and then on down the Hudson River to New York City.

Canal Description

The completed canal measured 363 miles long with 83 locks to negotiate the 553 foot drop in elevation from Buffalo to Albany. The thirty-mile portion between Schenectady and Albany alone had 23 locks to travel the 200-foot difference in elevation between the two cities. Each lock was 90 feet in length and 15 feet in width. The four-foot deep, prism-cut channel measured 40 feet across at the water's surface and 26 feet at the bottom. The towpath was 10 feet wide while the berme, the embankment of the opposite side of the canal, was eight feet wide.



Illus. 1

Most canal boats were 75 feet long and between 12 and 14-1/2 feet wide. The canal could accommodate boats up to 75 tons with three-and-one-half feet as a maximum draft (the depth of water required to float the vessel).

Commercial Success

The Erie Canal was a financial success from the start. Active with business before its full length was completed, the canal cut the costs of shipping freight by more than ninety percent, letting loose a flood of goods and merchandise which had been immobilized by the high cost of land transportation. Raw materials and produce, especially lumber and wheat, were moved east, while merchandise and emigrants were transported west. Tolls on canal traffic provided additional revenue for the State. Within ten years after its completion, the original construction costs had been paid off.

In addition to providing easy access to markets, the canal raised land values and stimulated the growth of cities. The increase in commercial traffic brought prosperity to cities like Albany and Troy. Other cities along the canal, such as Buffalo, Rochester, Syracuse, and Utica, had become boom towns.

Canals had been used in Europe since the Roman Empire, but the idea of building canals in America was slow to catch the public's imagination. People at first mocked the Erie Canal, calling it "Clinton's Ditch" or "Clinton's Folly" after the New York State Governor, DeWitt Clinton, an avid supporter of the canal. But the Erie Canal, "from the date of its commencement in 1817, seemed to demonstrate to popular imagination that canals were necessary, and that commercially they would succeed." The Erie Canal was so successful that it created a frenzy of canal building in New York and other States. The country was caught up in a sort of canal fever. In New York State, the same year the Erie Canal was completed, the Legislature passed the "Great Canal Act" which authorized surveying of 17 canal routes. Other States attempted similar canal projects with less success; Pennsylvania nearly went bankrupt by trying to build an elaborate canal system across the Allegheny plateau.

Canal Widening and Relocation

The period from 1825 to 1834 was a time of development for the Erie Canal. There were no radical changes to the canal, only repairs and minor improvements necessary to keep the canal operating. The size of the canal was found to be inadequate as the traffic and size of boats increased. By the early 1830s, traffic had increased so rapidly and the crowding of boats was so great, especially in the Eastern Section, that the State began to consider ways to alleviate and improve the situation.

Plans to improve the canal included doubling locks and enlarging the channel by increasing its dimensions. One proposal suggested that a second canal be built parallel to the existing Erie in the Eastern Section where crowding was worse. Another plan proposed converting the Erie Canal into a railroad.

Supporters of the proposals to increase the size of the canal claimed that an enlarged canal was needed to serve the increased population in the western section of New York State. Also, they argued that by improving the original facilities, transportation expenses would be reduced and western traffic and trade would then increase. Engineering surveys to reexamine the canal line were begun in 1832 under the direction of Holmes Hutchinson. These surveys produced the famous ten-volume series of Erie Canal maps published in 1834.

The first step toward enlarging the canal came in 1834 when the canal commissioners submitted a report to the Legislature, recommending double locks on the Erie Canal east of Syracuse. An act passed in 1835 authorized the construction of an enlarged canal and provided for double locks in some areas. Plans for the enlarged canal specified the size of the canal to be increased to a width of 70 feet across at the surface and to a depth of seven feet. In addition to building two locks in the more active places, the size of the locks was increased in length to 110 feet and in width to 18 feet.

Work began on the Eastern Section first, since this section general was more crowded. Canal engineers decided to alter the line of the original canal in places they had found to be troublesome, such as the several miles of canal near the Cohoes Falls. In this area, the new line of canal was placed to the west of the original line. The junction of the Erie and Champlain canals was relocated to the south, closer to West Troy. The enlarged Erie Canal rejoined the old canal line above the Cohoes Falls. (It was during this period of canal construction that the portion of the Erie Canal was excavated through what is now known as Maplewood.)

Construction work on the enlargement of the canal did not proceed as quickly nor as smoothly as it had on the original canal. After the 1830s, the canal faced increasing competition in freight traffic from the railroads which rapidly were being built and spreading across the State. In addition,

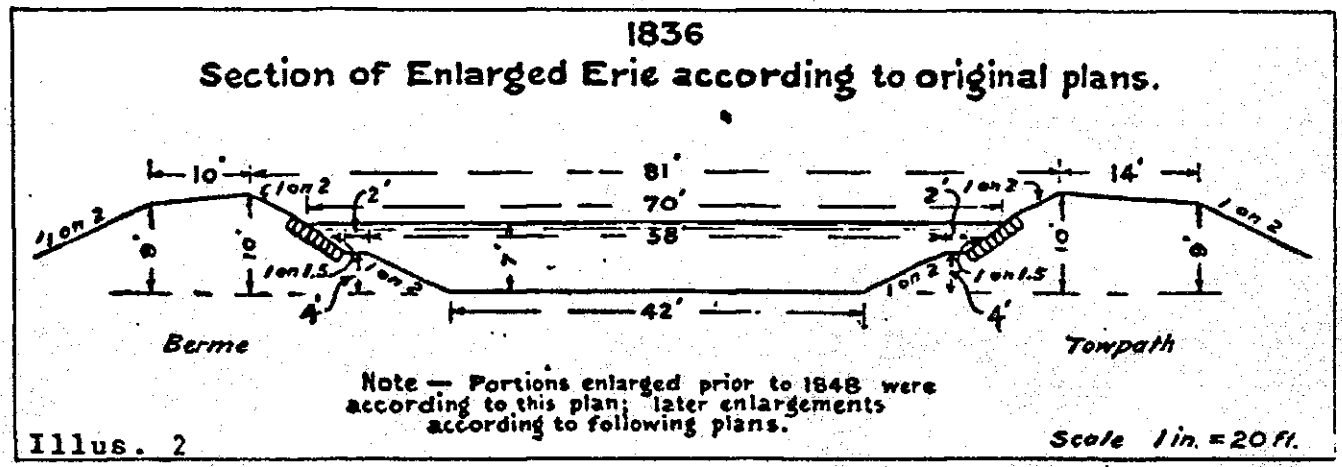
New York State had suffered during the nationwide financial panic of 1837. The massive program of enlargement placed additional strain on the State Treasury, increasing the debt and impairing the State's credit. Also, the two principal political parties in New York were divided on canal policy; one favored improvements and expenditures while the other supported retrenchment and cautious spending. The canal became such a powerful issue that it even caused schisms within the political parties. As a result, work on the canal would be started, then delayed, and even stopped because of insufficient funds. As people were inconvenienced because of unfinished work, they became disillusioned with the proposed canal.

The unpopularity of the Erie Canal reached its height in 1842 when an anti-canal Legislature passed a law commonly known as the "Stop and Tax Law." This law suspended further work on the canal, and taxes were levied to raise revenues to "preserve or secure" the canal for use. Those parts of the enlarged canal already constructed, including the portion around Cohoes Falls, were put into operation.

In 1847, work on the canal improvements began again after a moratorium of more than four years. Gradually, people realized that the losses from reduced traffic, resulting from inadequate facilities, outweighed the costs of improving the canal. The heyday of canal popularity was over, however, and although work continued, it progressed slowly with limitations on funds and restrictions on work.

Description - Enlarged Erie Canal

The enlargement of the Erie Canal was declared officially complete on September 1, 1862, over a quarter of a century after it had begun. Because the enlargement spanned so many years, plans were altered as different ways to improve the canal was discovered. The new canal, the enlarged Erie, measured 350.5 miles long with a seven-foot deep channel. The width of the prism at the water's surface was 70 feet at the bottom, the prism's width varied from 52-1/2 to 56 feet. There were 72 locks on the canal: 57 of them were doubled and 15 were single.



Illus. 2

Competition between the canal and the railroad became tougher as railroads grew in popularity and increased in mileage. Railroads were not hampered by weather or restricted to a navigation season, thereby offering year-round service. At first, the Legislature protected the canal by prohibiting the railroads from carrying freight during the canal's navigation season. But, there were increased pressures from shippers who preferred the speed of the railroad. Eventually, the Legislature permitted the railroads to carry freight during the navigation season, if they paid equivalent tolls to the canal fund. In 1851, all tolls on railroads carrying freight were abolished. By 1858, the canal had lost much of its freight business to the railroads, except for the lumber and wheat freight business from the Great Lake States. This traffic was sufficient enough to keep the canal active into the 1870s.

By the 1870s, the railroads, which had established vast networks in New York, had gained control of the transportation business because it offered a cheaper and faster mode of travel. At this time, loyal canal supporters began to consider ways to promote the need for canal improvements and increase the freight business on the canal. A survey, begun in 1878, sought to determine the condition of the canal and any necessary improvements. As "double-headers," (boats pulled in tandem) became popular, some locks were lengthened to 220 feet to accommodate the double lengths. In order to attract business, tolls were gradually reduced, until 1883 when they were abolished altogether. Although traffic increased slightly after this, these minor improvements could not keep up with advancements in technology, such as increases in the size of boats.

In the 1890s, interest in the canal revived and citizens of the State began urging that the canal be modernized. In 1895, the "Nine Million-Dollar Act" was passed, authorizing this amount to be spent on improving the Erie, Champlain, and Oswego canals. By 1896, the second enlargement of the Erie Canal had begun.

The period of the second enlargement was sporadic and shortlived; work could not continue because of fraud scandals and shortage of funds. By 1899, the Legislature began seeking alternatives to this second enlargement plan. A commission was established to suggest the best policy for enlarging the canal. This was the beginning of the Barge Canal, sometimes known as the third enlargement. By 1900, surveys and the preparation of estimates for the Barge Canal had been started. It took five years before these studies were completed and constitutional approval was granted. Nevertheless, on June 7, 1905, work on the Barge Canal began at Waterford, New York. Construction continued from 1905 to 1918 and included converting parts of the enlarged Erie Canal into sections of the new Barge Canal.

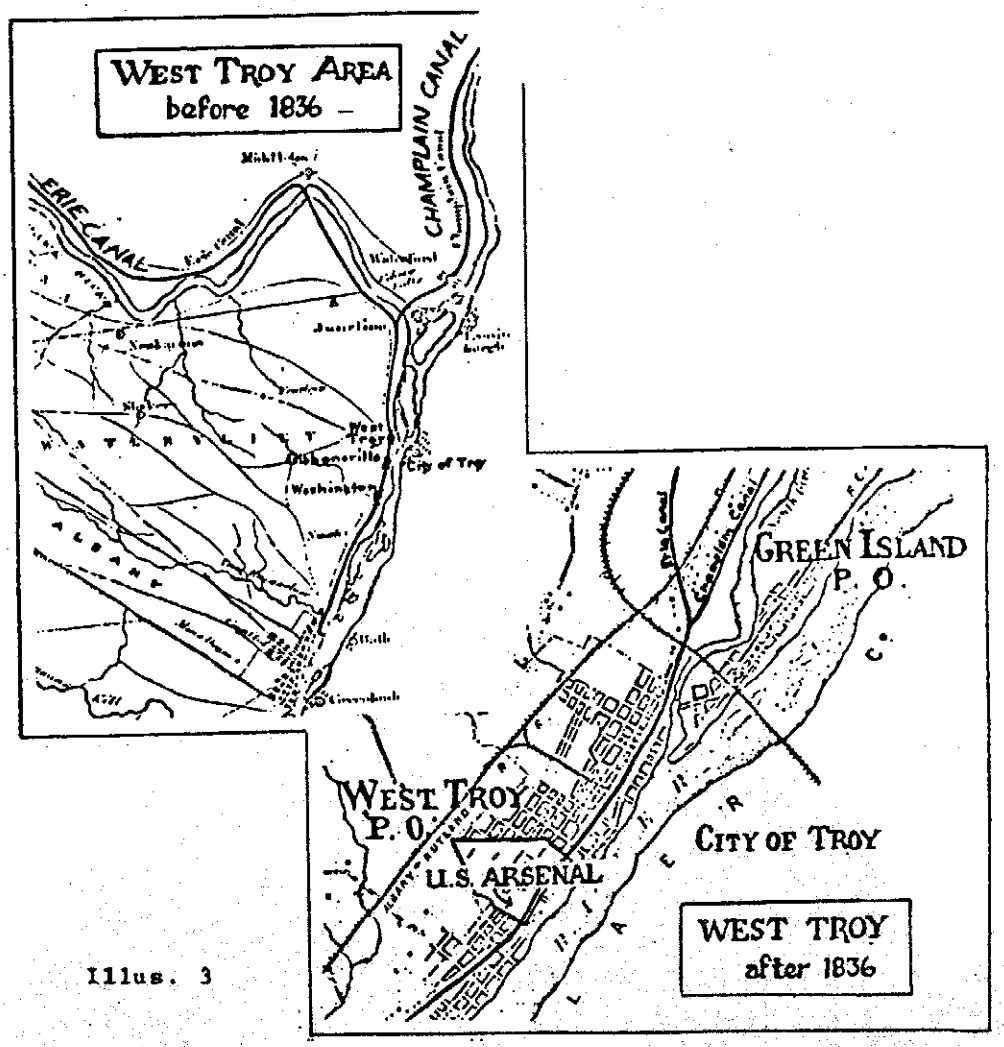
The Barge Canal, which is still in use today, follows rivers which were modified to accommodate large barges; the canal channel is 14 feet deep with

locks 45 feet wide. The 524 miles of the State Barge Canal included parts of the old Erie, Champlain, Oswego, and Cayuga-Seneca canals. The portion of the Mohawk River incorporated into the canal is called the Erie Division.

Erie Canal - Development of the Canal near Maplewood

The Erie Canal stimulated the prosperity of many towns along its route including Watervliet, which was south of its junction with the Champlain Canal. Watervliet was located strategically on the canal, and its development and growth parallels the development and growth of the canal.

At one time, the city of Watervliet was called West Troy; the change in name occurred in 1896, the same year the town of Colonie was formed, of which Maplewood is a part. West Troy, located on the west bank of the Hudson River directly opposite Troy, New York, was incorporated in 1836 when three smaller villages were combined: West Troy, Gibbonsville, and Washington. This locale, part of the Manor Rensselaerwick, was especially attractive to settlers because of the beautiful and fertile valleys of the Hudson and Mohawk Rivers and the protection provided by nearby Fort Orange in Albany.



Illus. 3

In the early 1800s, the small villages which later became West Troy were active centers of manufacturing. Additional growth occurred when the U. S. Government established an arsenal in Gibbonsville in 1813. These villages had a large shipping business in freight and passenger traffic because they were so close to the Hudson River. In 1823, when the canal was completed enough to allow ships to sail between Gibbonsville and Rochester, the shipping business increased substantially in these villages. Although the passenger business stopped before the enlargement of the canal began in 1836, the freight business, especially the trade in lumber, continued actively until 1845. Lumber was carried down the canal, unloaded in West Troy, and reloaded onto ships which carried it down the Hudson River. As the use of steam power increased, cargo was transferred from canal boats onto larger barges and then towed down the river by steam-powered tugboats. In 1845, a Troy merchant, William C. Rice, began a line of canal boats which traveled through from Buffalo to New York City, eliminating the need for a cargo transfer point and diminishing the importance of West Troy in the trade on the canal. However, small, local manufacturers built factories near the canal and continued to take advantage of this convenient and inexpensive mode of transportation.

Despite the benefits brought to the area by the Erie Canal, West Troy and nearby villages along the canal between Albany and Schenectady did not prosper as they might have. First class passengers more interested in time than comfort traveled by stage coach rather than by canal. Twenty-three locks negotiated the two hundred foot difference in elevation between the two cities, requiring 24 to 48 hours to travel. As a result, these villages lost the lucrative business of first class passengers who preferred to speed of the stage coach (and later, of the railroad).

The size and capacity of the original canal soon became inadequate for the amount of traffic and the increasing size of boats using the canal. To meet these demands, plans were made to improve the canal by enlarging the prism and locks and by constructing double locks in the active places.

During preparations for the enlargement of the canal, engineers studied the original canal to determine necessary improvements in its construction and location. The number of locks between Albany and Schenectady, especially locks number three to eighteen (called the "sixteens"). presented special problems. Because so many locks were required to negotiate such a sharp rise in elevation over so short a distance, the pound-reaches, the distance between the locks, were short and troublesome. These short pound-reaches could not accommodate very many boats at one time, a cause of the crowding the Eastern Section. In addition, they were subject to an unusual amount of erosion by the rush of water released from the sluice-gates of the locks.

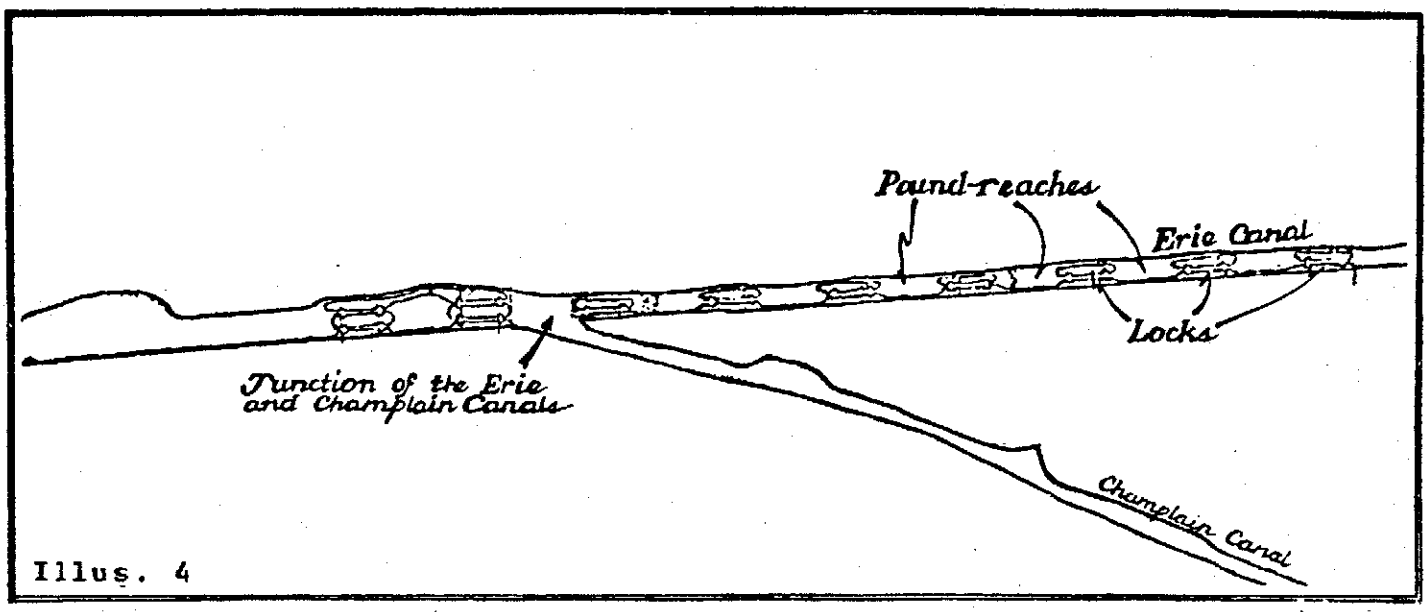


Illustration showing the pound-reaches and locks

The engineers decided to reroute the canal for a distance of four and one-third miles. Locating the ascent of the locks of the canal closer to Albany allowed for more distance between the locks and an increased capacity for boats. Branching out one and one-half miles north of West Troy, the new line ran west of the old line to above the Cohoes Falls where it rejoined the old line. When the alignment of the Erie Canal was changed (during the enlargement), the junction of the Erie and Champlain canals was moved to the south. The section of the old Erie Canal between the old and the new junctions became the southernmost portion of the Champlain Canal.

Oothout Culvert, Waste Weir and Canal Archaeology

The act authorizing the improvements in the canal was passed in 1835. Although no source was located which indicated the exact date of the construction for the canal in Maplewood, New York, the work can be estimated to have taken place between 1836 and 1842. The enlargement in the Eastern Section was authorized to begin in 1836 because this section was the most crowded. The canal in the project area was part of the new line of the enlarged Erie which required new excavation and not enlargement of existing canal traffic, could have begun anytime after the 1836 authorization.

Data from the field surveys confirm the date of 1842 as the latest possible year of construction for this section of canal. Traces of stone lining were found along the inside banks of the canal trough. The original 1836 plans for the prism (trough) of the enlarged Erie (for portions enlarged prior to 1848) included partial stone lining on the inside walls of the canal banks.

In addition, cross-sections of the prism made by the Department of Transportation (DOT) staff in the summer of 1979, show that the slope of the canal trough in Maplewood, New York, conforms to the slope of the prism walls in the 1836 plans. The DOT cross-sections do not have the bench or step which appears in the original plans, but natural erosion may have removed this feature.

In one DOT cross-section (cross-section 5), the grade of the inside slope of the west bank does not resemble the grade of the slope in the 1836 plans. This bank is lined with stone and situated opposite the waste weir. The gradient of this bank is similar in design to the gradient of banks that were modified by sidedocking, an improvement used in the eastern division of the enlarged Erie in 1862. Sidedocking strengthened the bank of the canal and protected it from erosion caused by the force of water from the motion of boats and the emptying of locks.

Waste weir No. 3 is located in the berme bank of this part of the canal. Waste weirs, which were not provided for in the plans of the original 1817 Erie Canal, regulated the water level in the canal. When excess water would accumulate in the canal after the locks were used or after rain, it was removed by opening the gates of the waste weir. Waste weir No. 3 was combination weir and spillway (the channel for the excess water). Although no plans could be located for this specific waste weir (No. 3), a general plan for waste weirs for the enlarged Erie is included.

The canal culvert in the project area is Culvert No. 11 or the Oothout Culvert, named for the creek it diverts under the canal trough. Constructed of stone, the culvert is an arch diving culvert 162 feet long. The ends of the culvert measure six feet in width and three feet in height. The wooden gates across the culvert are not typical features of canal culverts and were probably added later to keep children and debris out of the culvert.

The railroad tracks which cross the canal below Lock No. 4 were part of the original 12 miles of tracks of the Albany Northern Railroad Company which ran from Albany to Waterford Junction. Originally, the tracks spanned the canal by a bridge. The first bridge crossing the canal below the lock (No. 4) was built by Squire Whipple between 1852 and 1853. It was Whipple's first Trapezoidal Iron Truss railroad bridge and was "considered to be the oldest railroad bridge of considerable span in this country, if not the world."42 Sources differ on the length of the span, with distances ranging from 146 feet and 150 feet of clear span. The first bridge was replaced in the early 1880s by another iron trapezoid truss bridge. At that time, the Delaware & Hudson Company (D&H) owned the tracks and called the bridge No. 5. In 1907, the D&H began to modernize their property for the new and heavier freight locomotives. A Through-Lattice-Truss bridge was built over the canal when a second line was installed north of the first tracks. The bridge abutments for

the Through-Lattice-Truss bridge are still visible and correspond to the drawings in the masonry plans.

The D&H changed the number of the bridge from 5 to 7.07 because the distance from the Albany Station to the bridge was 7.07 miles. By 1927, both bridges had been taken down. A railroad bed was constructed by filling in part of the canal, and a concrete culvert pipe was added to equalize the water pressure between the two sections of the canal trough on either side of the railroad bed. In 1945, the two lines of tracks were realigned to form a single line still in use today.

In the late 19th and early 20th centuries, John L. Thompson and Luhr Eggers were two manufacturers who operated factories near Lock No. 4 (on land adjacent to or in the project area). Both factories appear on 1891 D&H maps which show track lines for a proposed spur from the main railroad tracks to the buildings of Thompson's Chemical Works.

Thompson's Chemical Works, which was located on land adjacent to the project area, manufactured sulphuric acid. In 1899, the name of the factory was changed to the General Chemical Company. The company moved from its buildings near Lock No. 4 to offices on First Street in Troy,, New York, in 1901.

Luhr Eggers and his sons, Harmon and Luhr, Jr., operated a soap, bone black, and neats foot oil factory approximately 200 feet southwest of Lock No. 4 in the immediate project area. The earliest listing for the Eggers' factory is in the 1871 Troy City Directory, but an advertisement in the 1875 Troy City Director gives 1860 as the year the factory was established. By 1886, the Eggers' factory was concentrating on making bone products and fertilizers rather than soap. Larger soap manufacturers had slowly absorbed most of the small family-run soap factories.43 By 1892, the Eggers' factory was called the Novelty Bone Works and was operated by Luhr Eggers, Jr., and his sons, Edward and Frederick. The factory's products included fertilizers, bone dust, bones, hoofs, tallow and bone grease scraps. The factory continued operating into the early 1900s under the direction of Edward and Frederick Egger. The last entry for the Eggers brothers' factory in the Troy City Director appeared in 1913.

A 1917 D&H canal map shows a brick mill near Lock No. 4 in the approximate location of the Eggers' bone factory. Although the complex of buildings is different than the one on the 1891 map, the size and location of the brick mill approximates that of the bone factory. Brick manufacturing is one of the oldest industries in the Albany area, and this mill may have been a small, family-run operation taking advantage of the natural clay deposits in nearby streams.

Additional information on the brick mill could not be located through documentary research. Mr. Belokopitsky, who currently owns the land on which the mill once stood, remembers that the factory building was still standing when he was a young boy. At this time, the house associated with the brick factory was used as a machine shop. According to the Belokopitskys, the site of the factory was bulldozed before 1960 and again, in the early 1960s, when they became the landowners.45 Walkover surveys failed to produce archeologically significant surface evidence of the factory.

1
The following reports are on file at the Environmental Analysis Bureau, New York State Department of Transportation, Building 5, State Campus, Albany, New York 12232.

1) Sandy Tabor, Report of Cultural Resources: Alternate Route 7, PIN 1059.01. (Albany, N.Y.: NYS Musuem, October, 1978).

2) Donald Cornell and Edward R. Kozacek, Cultural Resources Report: PIN 1059.01 Alternate Route 7. (Albany, N.Y.: NYS Museum, January, 1979).

2
Nobel E. Whitford, History of the Canal System of the State of New York (Albany, N.Y.: Brandow Printing Company, 1906), Vol. I, pp. 15-18.

3
Until the Erie Canal was built, Schenectady, a major cargo transfer point, was the principal port on the lower Mohawk River. (Shaughnessy, p. 89).

4
Two other private companies formed during this time were the Northern Inland Lock Navigation Company, which worked on improving navigation along the northern route via Lake Champlain, and the Niagara Canal Company, which proposed building a canal from Lake Erie to Lake Ontario.

5
Gouverneur Morris, quoted in Whitford, p. 53.

6
Compare the list of reasons given for the canal in the 1811 Law with those in the 1817 Law. The 1817 Law, passed after the War of 1812 includes this additional reason for building the canal: "to mitigate the calamities of war, and enhance the blessings of peace." (See Appendix K).

7
Laws of New York, 1817, Chapter 262, p. 301. (See Appendix

8
Whitford, Vol. II., pp. 1037 and 1466.

9 Russell D. Bailey & Assoc., A General Development Plan for Fort Hunter State Historic Park (Utica, N.Y.: n.p., 1968), p. 2.

10 At first, roads were owned by towns or private companies. These roads were usually in miserable condition (uneven, rough, muddy). Most towns did not have the resources to keep up the roads. Privately-owned toll roads failed to collect enough revenues to keep the roads in repair. Travel and transport by horse and wagon was limited by size and speed which placed restrictions on the amount of goods carried and the number of markets reached.

11 The original estimate for the cost of building the Erie was $4,881,738, and the actual cost of construction was $7,143,789.86. Some of the factors contributing to the additional expense were the following:

1) the excavation through the pristine forest in western New York State;

2) the use of stone instead of wood for some structures;

3) the use of bearing piles (found necessary in the foundations of locks and aqueducts); and

4) the addition of waste weirs (not provided for in the original plans).

12 One rhyme chanted by people opposed to the canal was" Clinton, the federal son of a bitch, Taxes our dollars to build him a ditch." (Albany Times Union, 15 October, 1975).

13 The D&H, A Century of Progress: History of the Delaware and Hudson Company, 1823-1923. (Albany, N.Y.: J.B. Lyon Company, 1925), p.2.

14 Six canals were built within the decade after the Erie Canal was completed (a total of 210 Canal miles). In the next four years, four more canals were authorized. During this frenzy of canal building, a total of 1,060 miles of canal was built in New York State. This mileage included the Erie and Champlain Canals, lateral canal and feeders, and 105 miles of canals owned by private companies. (Whitford, p. 131). See the "Great Canal Act" in Appendix K.

15 David M. Ellis, et. al, A History of New York State (Ithaca, N.Y.: Cornell University Press, 1972), p. 246.

16 Whitford, p. 142.

17 The Canal Commissioners compiled the maps made during the surveys directed by Holmes Hutchison in a ten volume series for the Champlain Canal. Copies of canal maps made during these surveys appear in Appendix C.

18 Ellis, pp. 247-248.

19 Refer to Appendix K for a copy of the "Stop ... and Tax Law" of 1842.

20 Refer to Appendix H for plans used for the Enlarged Erie Canal.

21 Whitford, pp. 1038 and 1466.

22 The peak for tonnage of freight carried on the Erie Canal was in 1872 (See Table 1):

Table 1

Year	Tons	
1825	218,000	
1860	4,650,000	
1872	6,000,000	(Ellis, p. 244)

23 Whitford, p. 400-402.

24 Albany Times Union, 10 July 1979.

25 Ellis, p. 250.

26 Jim Shaughnessy, Delaware & Hudson (Berkeley, California: Howell-North Books, 1967), pp. 90-92.

27 The following table gives the total railroad mileage in the United States for the years 1830-1860:

Table 2:

Year	Mileage
1830	23 (16 of which were the D&H gravity railroad)
1840	2,818
1850	9,021
1860	30,635

(Shaughnessy, p. 39).

28 Shaughnessy, p. 65.

29 Below is a list of railroad companies which at one time owned the line of tracks in the project area:

Table 3:

Year	Company
1851-1856	Albany Northern Railroad
1856-1859	Albany, Vermont & Canada Railroad
1859-1860	Albany & Vermont Railroad
1860-1871	Rensselaer & Saratoga Railroad
1871-present	Delaware & Hudson Railroad

(Schaughnessy, pp. 98-101).

30 Shaughnessy, p. 65.

31 For example, Cohoes was described as "a village of little importance" with only 20 houses before 1830. After 1830 several manufacturers located their factories in the city (Cohoes Co., Harmony (Mills) Manufacturing Co.,) and Cohoes grew rapidly until 1848. (Parker, pp. 435-436).

32 Amasa J. Parker, ed., Landmarks of Albany County (Syracuse, N.Y.: D. Mason Co., 1897), p. 396.

33 Industries in this area included potteries, woolen mills, brass foundries, and saw and planing mills. (Parker, p. 421).

34
At one time 130 shipping vessels operated out of West Troy, (Parker, p. 416).

35
George Howell and Jonathan Tenney, eds., History of the County of Albany, from 1609-1886. (Albany, N.Y.: W.W. Munsell & Co., 1886), p. 978.

36
"The rate for transportation on the turnpike in 1826 was one and a half cents a mile; the rate by canal was five mills (mill = 1/10 cent). But it should not, therefore, be inferred that all the passengers deserted the stages for the packet boats. The canal passage was still tedious compared to land travel, and was chosen chiefly by those who desired to lessen the fatigue of the journey, but was avoided where time was of account." (Parker, p. 95).

37
"As early in the season of 1836 as the weather would permit, the greater part of the line from Albany to Buffalo was reexamined by the engineers. Experience during the previous decade had disclosed the places where the canal could be bettered in the plan of construction and in location, and the engineers determined to avoid some of the inconveniences to which navigation had been subjected. Especially troublesome were the short pound-reaches that were located at the nine locks above the junction of the Erie and Champlain canals, at the three locks close by and at the four locks above Cohoes falls. With the locks lengthened and the boats enlarged, the reaches would become still shorter and more troublesome. Therefore, after a very careful examination, the canal board decided in favor of an entirely new location for a distance of four and a third miles, leaving the old line about one and a half miles above West Troy and joining it again above the four locks. The estimates showed this plan to be more expensive than to enlarge the old route, but its importance and decided advantages were considered to more than counterbalance the difference in cost. The locks could be so located as to give convenient pound-reaches between them, and the lifts could be so arranged as to reduce their number from nineteen to sixteen, without making any lift more than ten feet." (Whitford, Vol. I, p. 149.)

38
Lands along the abandoned section of the canal were transferred to landowners, and part of the canal in Cohoes was given to the Cohoes Company. (See Laws of 1837, Chapter 470, and Laws of 184, Chapter 413, in Appendix K).

39
"In 1837 the enlargement of the Erie Canal was made in this village (West Troy); its depth was increased to seven feet, by means of removing eighteen inches of earth from the bottom; and raising the banks the same number of inches; the width was also increased to seventy feet, by removing thirty feet of earth from the east side of the original bank." (Howell & Tenney, p. 977).

"In the spring of 1842, the double locks Nos. 3 to 18 (since known as the "sixteens"), together with the five sections of enlarged canal upon which they were situated, were brought into use." (Whitford, p. 171).

40
Suggested by Todd Weseloh, Librarian, Canal Museum, Syracuse, N.Y.

41
Whipple had worked on various canal projects, including the surveys for the enlargements directed by Holmes Hutchinson during the 1830's.

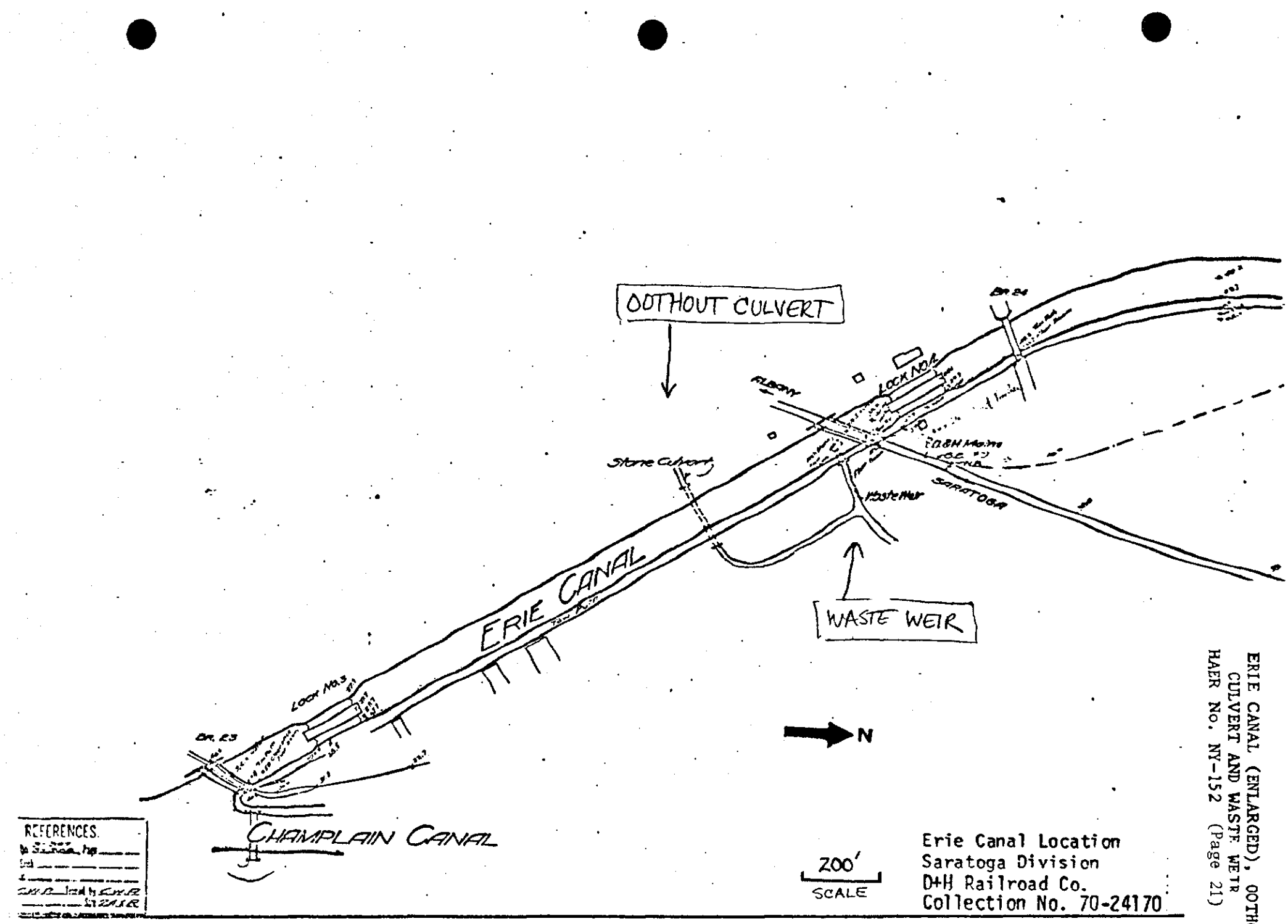
42
Howell and Tenney, p. 495.

43
Ibid., p. 566.

44
Ibid., p. 582.

45
Interviews with Mr. and Mrs. Belokopitsky, landowners. Maplewood, N.Y., August and September 1979.

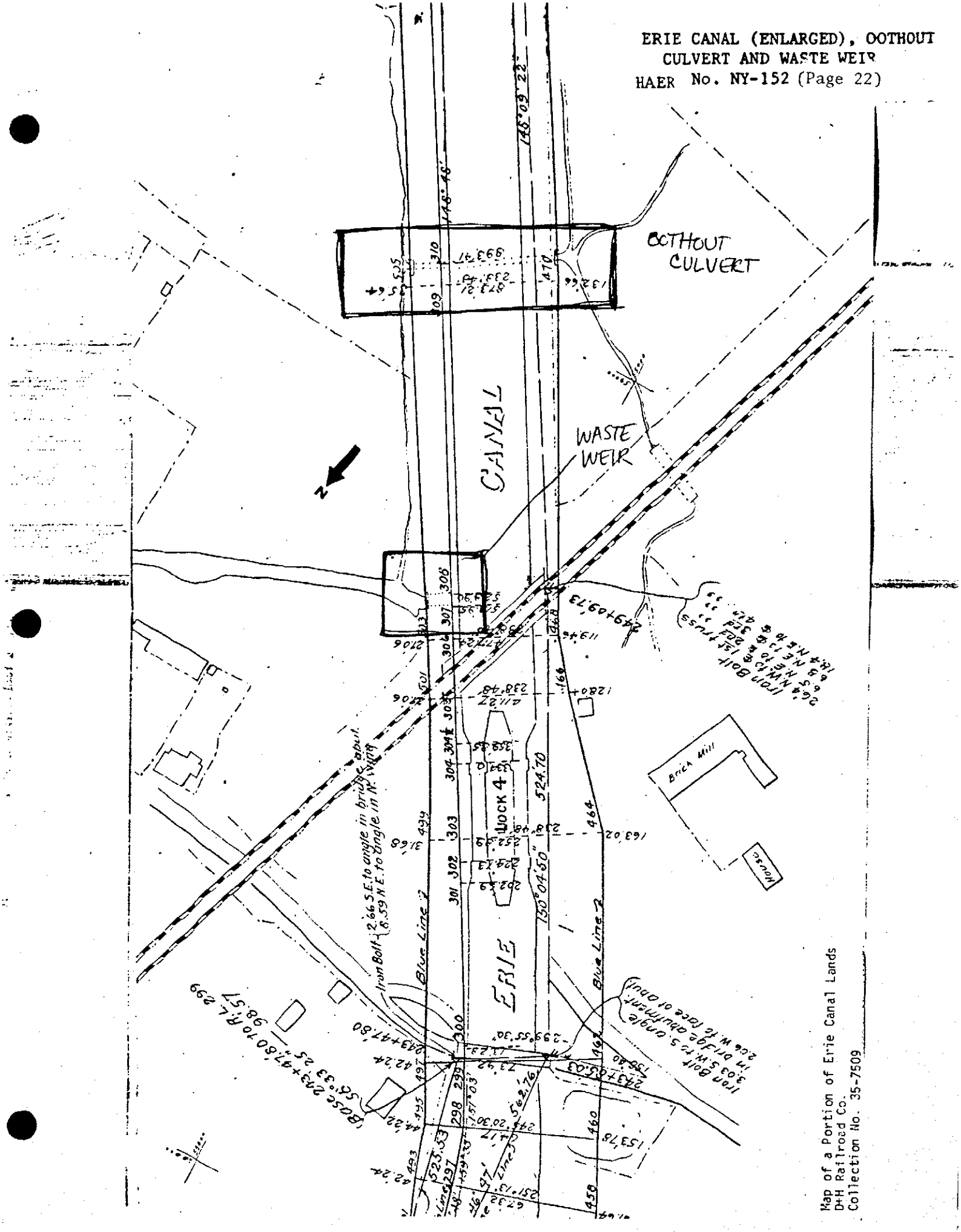
ERIE CANAL (ENLARGED), OOTHOUT
CULVERT AND WASTE WEIR
HAER No. NY-152 (Page 20)



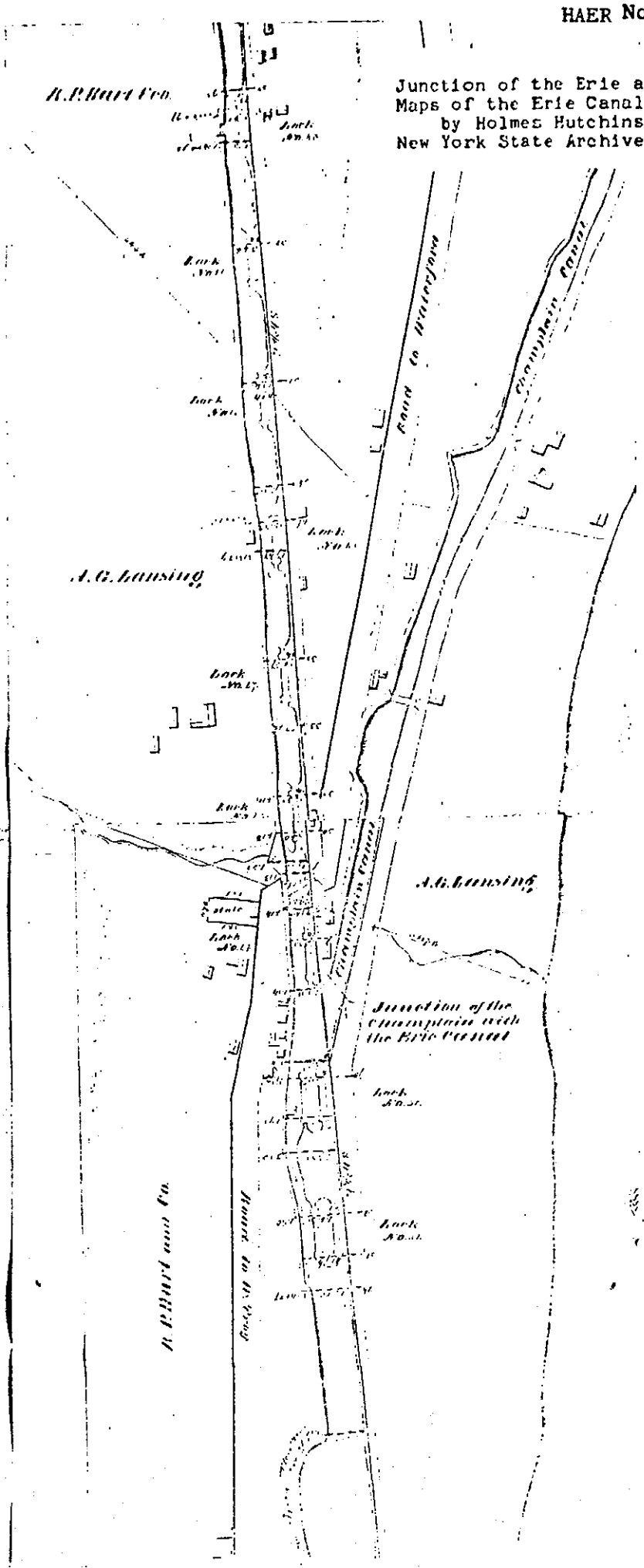
Erie Canal Location
Saratoga Division
D+H Railroad Co.
Collection No. 70-24170

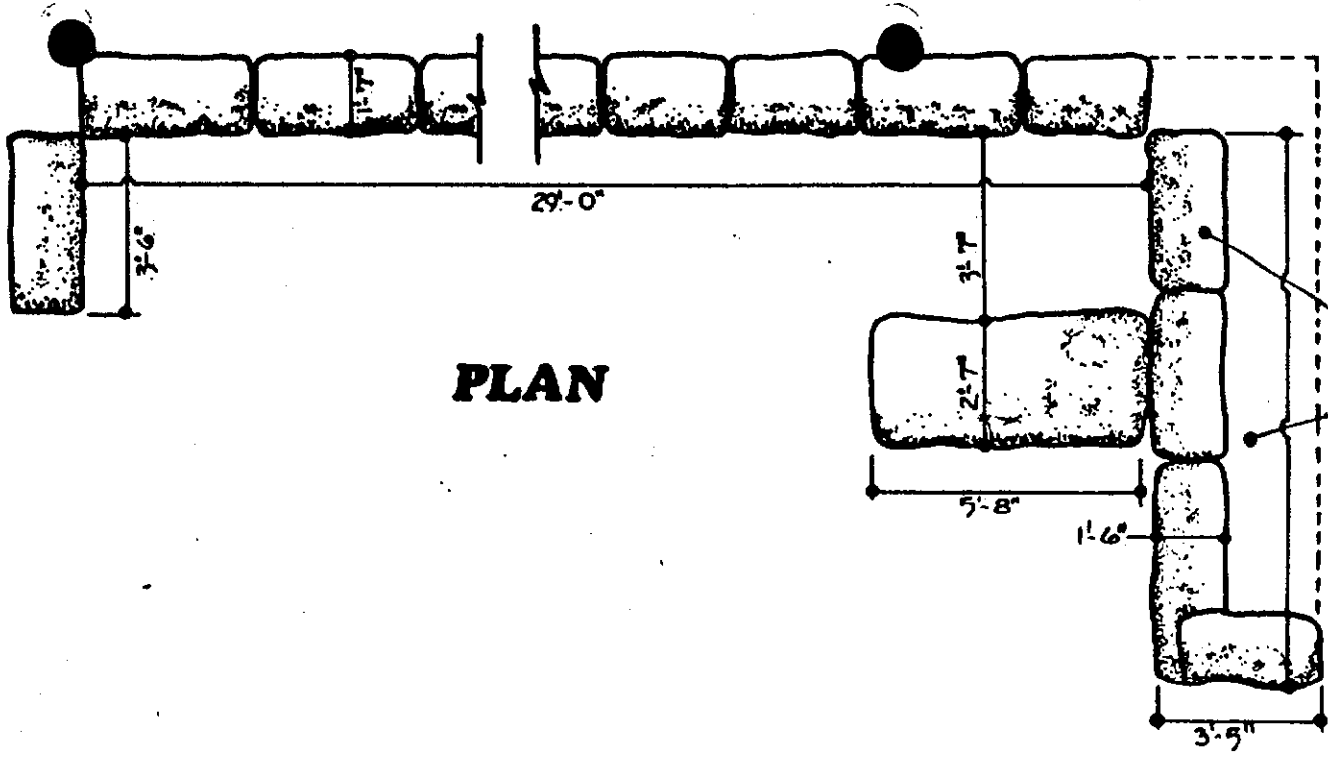
ERIE CANAL (ENLARGED), OOTHOUT CULVERT AND WASTE WEIR
HAER No. NY-152 (Page 21)

ERIE CANAL (ENLARGED), OOTHOUT
CULVERT AND WASTE WEIR
HAER No. NY-152 (Page 22)

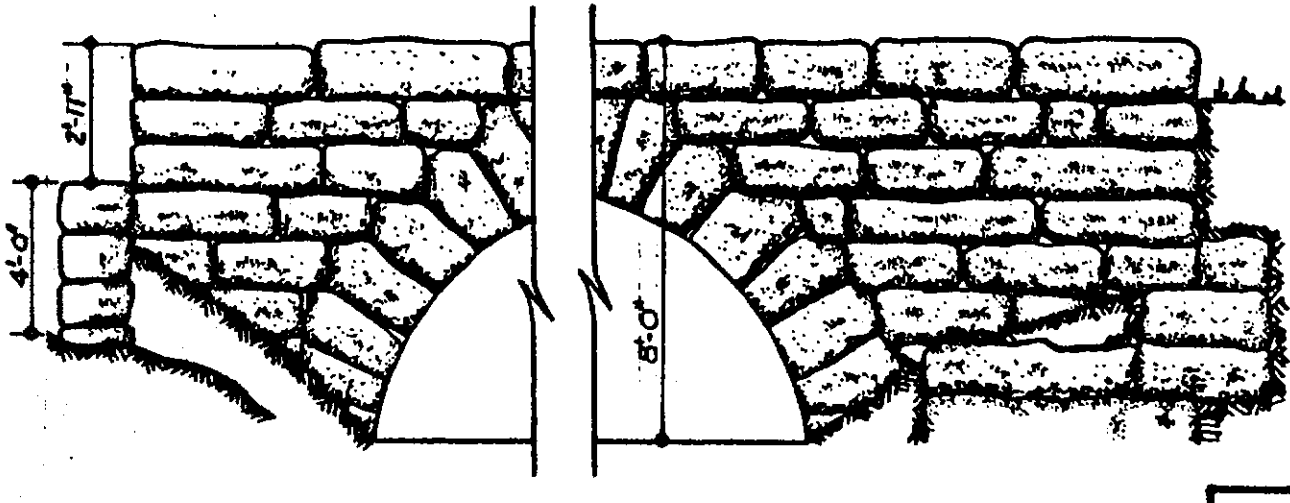


Junction of the Erie and Champlain Canals.
Maps of the Erie Canal from a survey made
by Holmes Hutchinson, 1834.
New York State Archives, Collection #284





PLAN



ELEVATION

NO SCALE

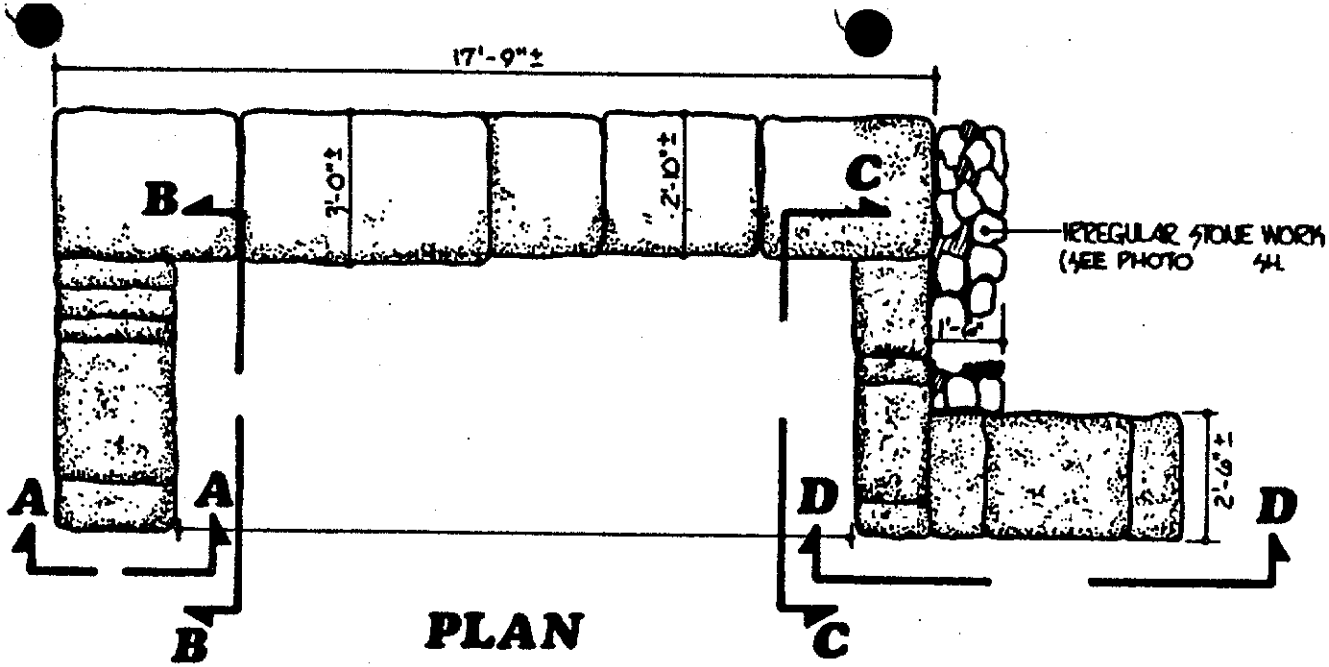
THE ERIE CANAL

MAPLEWOOD , TOWN OF COLONIE

EAST END WASTE WEIR

New York State
Department of Transportation

CULVERT AND WASTE WEIR
HAER No. NY-152 (Page 24)



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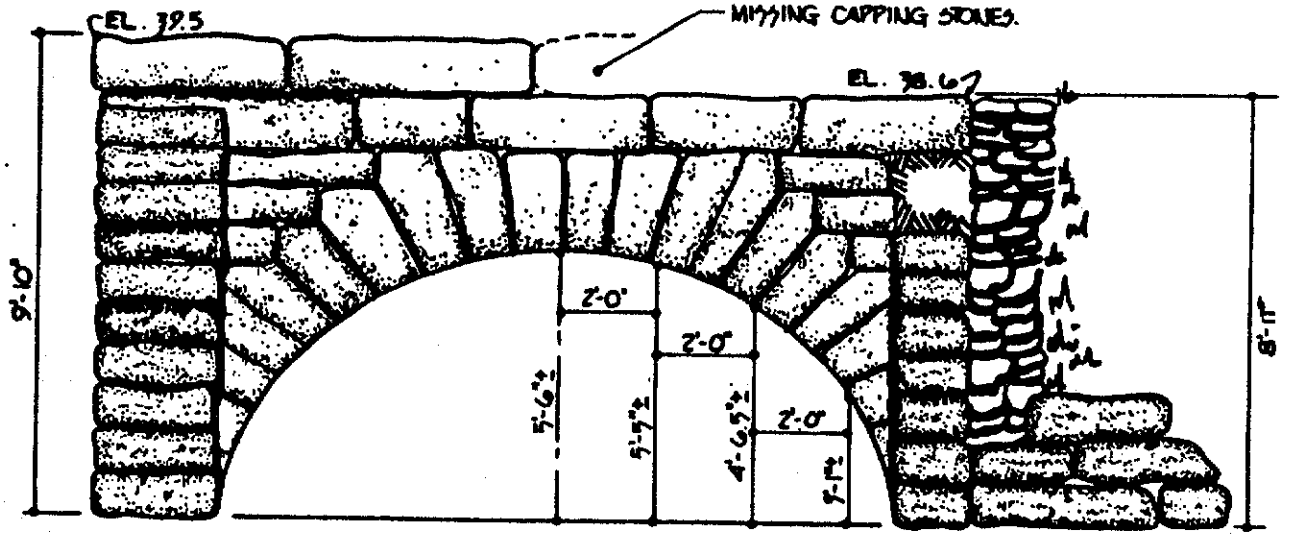


ELEVATION

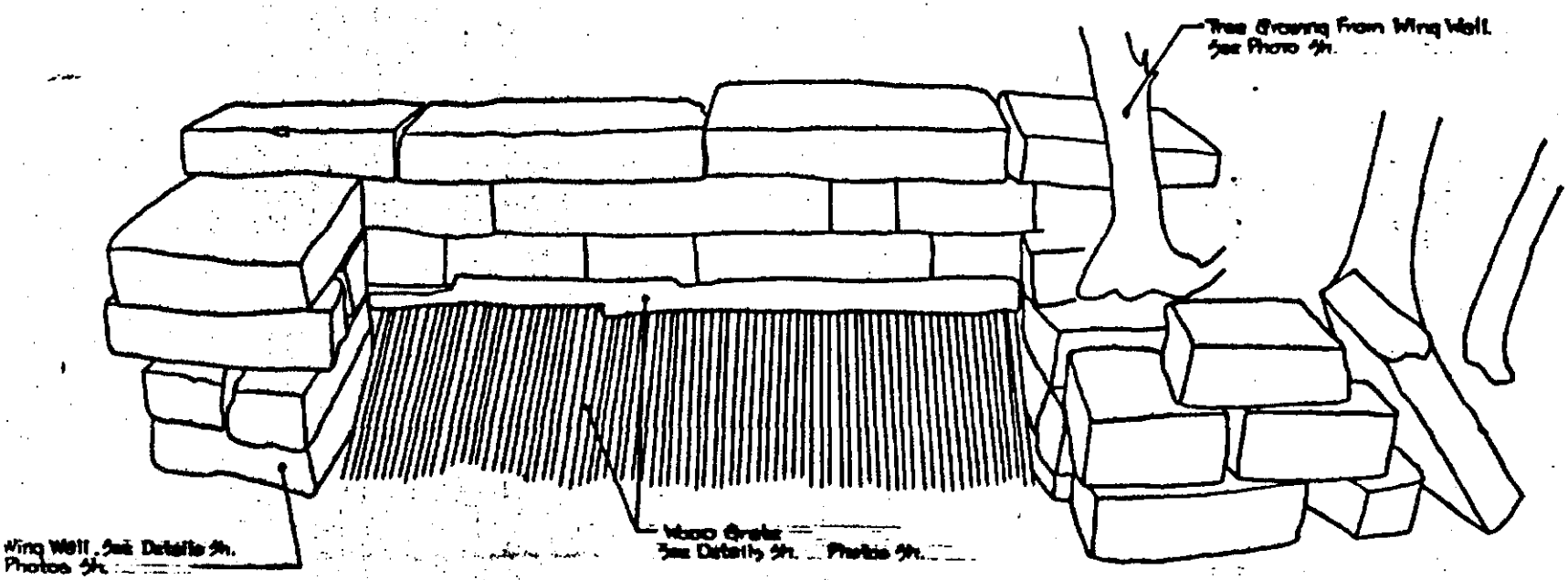
APPROX SCALE: 0 1 2 3 FEET.

THE ERIE CANAL
MAPLEWOOD , TOWN OF COLONIE

WEST END WASTE WEIR

New York State
Department of Transportation
84 Holland Avenue Albany, New York 12208

THE ERIE CANAL (ENLARGED), OOTHOUT
CULVERT AND WASTE WEIR
HAER No. NY-152 (Page 25)



East End Culvert

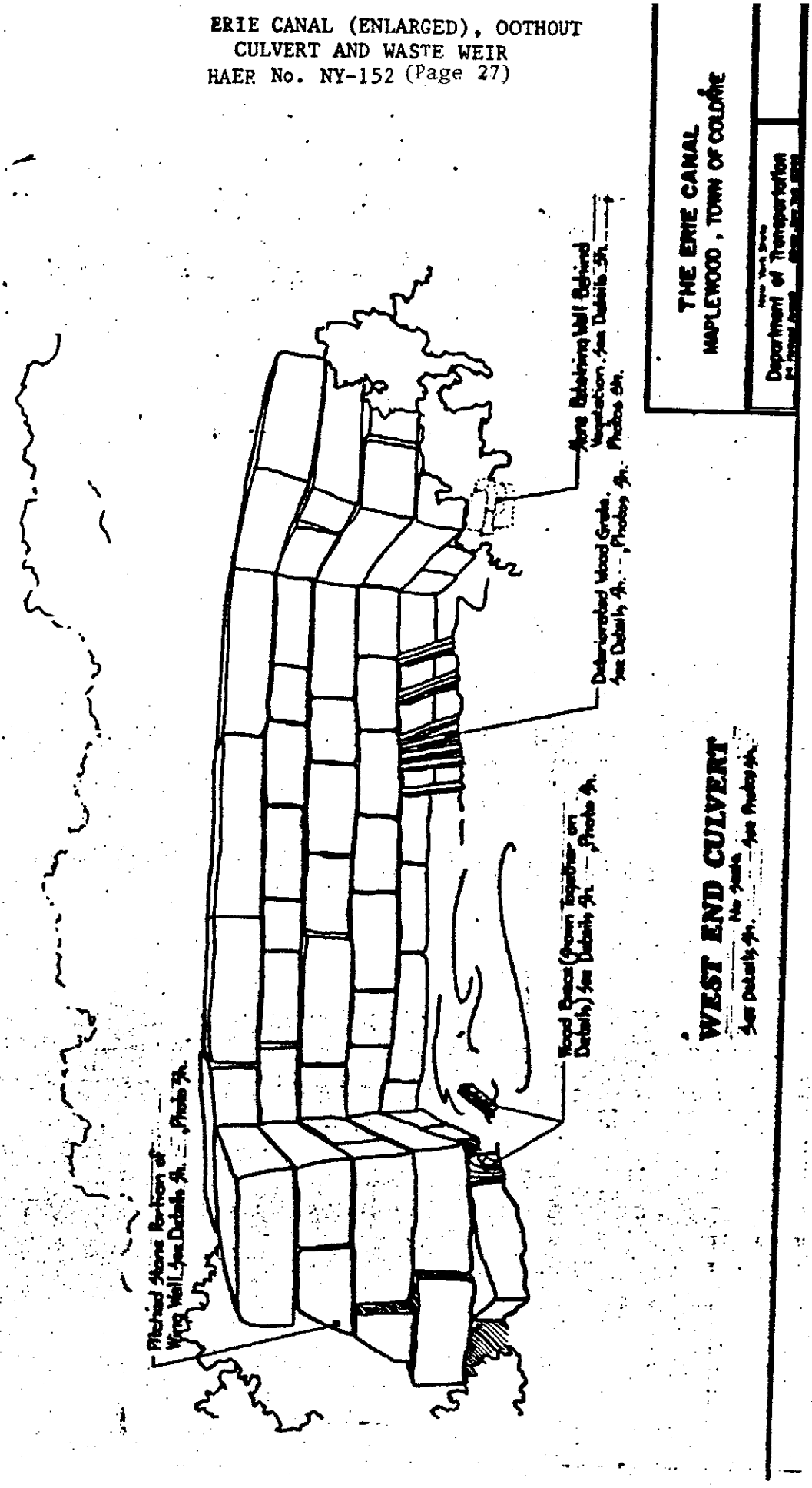
No Scale

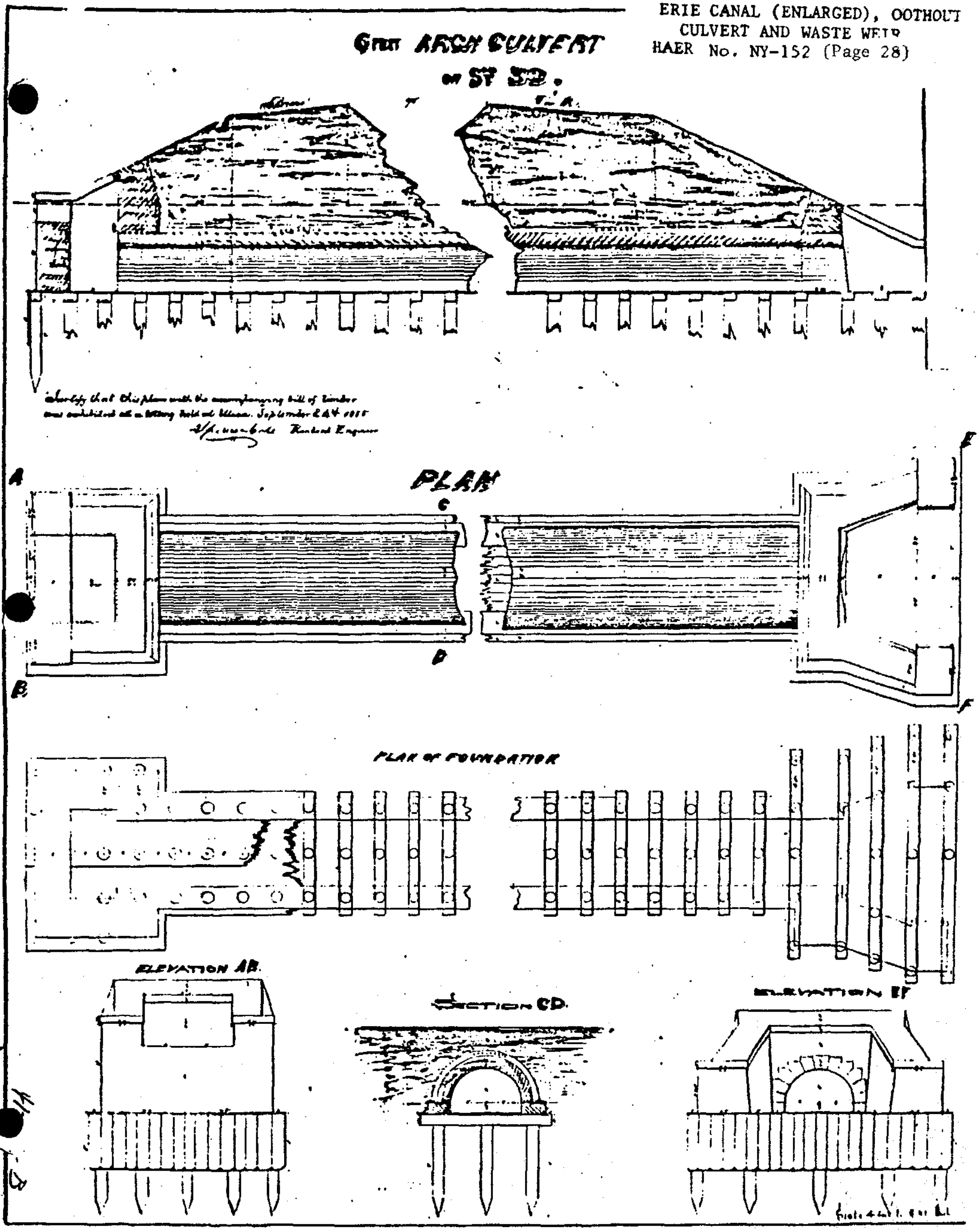
See Details 4h. See Photos 4h.

ERIE CANAL (ENLARGED), OOTHOUT
CULVERT AND WASTE WEIR
HAER No. NY-152 (Page 26)

THE ERIE CANAL
MAPLEWOOD , TOWN OF COLONIE

New York State
Department of Transportation


THE ERIE CANAL
MAPLEWOOD, TOWN OF COLONIE
WEST END CULVERT


ARCH CULVERT
PLAN
A
B
C
D
E
F
PLAN OF FOUNDATION
ELEVATION AB
SECTION CD
ELEVATION EF